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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/018,956	12/27/2001	Katsuaki Fukunaga	0425-0871P	6070
2292 . 7	590 07/07/2003			
BIRCH STEWART KOLASCH & BIRCH			EXAMINER	
PO BOX 747 FALLS CHURCH, VA 22040-0747			GREENE, JASON M	
			ART UNIT	PAPER NUMBER
			1724	a
			DATE MAILED: 07/07/2003	7

Please find below and/or attached an Office communication concerning this application or proceeding.

1) Responsive to communication(s) filled on 2a) This action is FINAL. 2b) This action is non-final. 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11, 453 O.G. 213. Disposition of Claims 4) Claim(s) 1-17 is/are pending in the application. 4a) Of the above claim(s)			\mathcal{N}				
Examiner Jason M. Greene -The MAILING DATE of this communication appears on the cover sheet with the correspondence address Period for Reply A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE ② MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. Extension of time may be available under the provisions of 37 CPR 1.35(a). In no event, however, may a reply be timely filled If the period for reply as pecified above, he measurem statutory period will apply and will expens SIX (5) MCN*TIS from the mailing date of this communication of the period of reply as pecified above, he measurem statutory period will apply and will expens SIX (5) MCN*TIS from the mailing date of this communication, even if through filled, may reduce a my statute period to the period of the peri		Application No.	Applicant(s)				
Jason M. Greene 1724		10/018,956	FUKUNAGA ET AL.				
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A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION. Extransions of time rapy be be without the provisions of 3° CFR 1.75(a). In no event, however, may a reply be timely filed Extransion of time parts of the provision of the provisions of 3° CFR 1.75(a). In no event, however, may a reply be timely filed If the parts of the provision of the provision of 3° CFR 1.75(a). In no event, however, may a reply be timely filed If the parts of the provision of the provision of 3° CFR 1.75(a). In the parts of the provision of the parts							
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DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(u)(2) because the view numbers are not larger than the numbers used for reference characters. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

2. Claim 4 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 4 includes limitations reciting the specific methods used to measure the pressure losses in the upper and lower portions of the coolants of claims 2 and 3. However, since claims 2 and 3 are directed to the coolant, claim 4 fails to further limit claims 2 or 3 because the specific methods used to measure the pressure losses do not impart additional structural limitations on the coolants of claims 2 and 3.

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Claim Rejections - 35 USC § 112

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. Claims 7, 12, 14, and 15 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "plainly" in claim 7 is a relative term which renders the claim indefinite.

The term "plainly" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The indefinite term renders the type of knitting used to form the wire mesh indefinite.

With regard to claim 12, the limitation "wherein compressing distances in the first and second compression steps are substantially equal" renders the claim indefinite because the meaning of the phrase "the first and second compression steps" is unclear. Claim 8, form which claim 12 indirectly depends, recites the coolant being compressed on the axially opposite ends thereof. Claim 8 does not recite the compression occurring in two separate steps. Therefore, it is not clear whether the compression is intended to take place in a single step or in two separate, successive steps.

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The term "plain-knitted" in claims 14 and 15 is a relative term which renders the claim indefinite. The term "plain" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention. The indefinite term renders the type of knitting used to form the wire mesh indefinite.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

- (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
- (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.
- 6. Claims 1-5 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujisawa.

With regard to claim 1, Fujisawa discloses a coolant (F) for an air bag inflator which is cylindrical in shape, disposed in a housing of said inflator in order to cool and

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purify a gas discharged from said inflator, wherein said coolant is obtained by compressing a molded product made of wire rods (11) on the axially opposite ends thereof in Figs. 1-7 and col. 3, line 57 to col. 4, line 64.

With regard to claims 2 and 3, Fujisawa discloses the coolant being obtained by compressing a molded product made of wire rods at least in the axial direction in Figs. 1-7 and col. 3, line 57 to col. 4, line 64.

Fujisawa does not explicitly disclose an absolute value of a difference between a radial pressure loss of the axial upper half portion of said coolant and a radial pressure loss of the axially lower half portion of the coolant being 10 mm H_2O or less at a flow rate of 250 liters per minute under an atmosphere of 20 ^{0}C .

However, since upper half portion of the coolant is substantially identical to the lower half portion of the coolant, the radial pressure loss in the two half portions will be substantial identical and the absolute value of the difference between the pressure losses will inherently be less than 6 mm H₂0 at a flow rate of 250 liters per minute under an atmosphere of 20 °C. The Examiner contends that the upper half portion is substantially identical to the lower half portion due to the process used to produce the coolant. First, the opposite ends of a tube formed from a metal mesh are outwardly folded to produce a multi-folded overlaid mesh. Then the multi-folded overlaid mesh is axially compressed from each of the opposite ends to form the coolant. See col. 4, lines 10-24. Since each opposite end of the coolant is folded and compressed, the upper portion will be substantially identical to the lower portion.

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With regard to claims 4 and 5, Fujisawa does not disclose the pressure losses in the upper half portion or the lower half portion of the coolant being measured using the recited method.

However, since claims 4 and 5 are directed to the structure of a coolant, the method employed to measure the pressure losses of the coolant does not further limit the claims since the method of determining the pressure losses does not impart additional structural limitations on the coolants. Therefore, Fujisawa is seen as anticipating claims 4 and 5 since Fujisawa discloses a coolant having the recited structural limitations.

With regard to claim 7, Fujisawa discloses the coolant being an annular laminated body made of a wire mesh (M) formed by plainly knitting stainless-steel wire rods (11), and said laminated body being compressed in Figs. 1-7 and col. 3, line 57 to col. 4, line 64.

7. Claims 1-5 and 7 are rejected under 35 U.S.C. 102(e) as being anticipated by Zettel et al.

With regard to claim 1, Zettel et al. discloses a coolant for an air bag inflator which is cylindrical in shape, disposed in a housing of said inflator in order to cool and purify a gas discharged from said inflator, wherein said coolant is obtained by

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compressing a molded product made of wire rods on the axially opposite ends thereof in Figs. 1-3B and col. 3, line 28 to col. 6, line 64.

With regard to claims 2 and 3, Zettel et al. discloses the coolant being obtained by compressing a molded product made of wire rods at least in the axial direction in Figs. 1-3B and col. 3, line 28 to col. 6, line 64.

Zettel et al. does not explicitly disclose an absolute value of a difference between a radial pressure loss of the axial upper half portion of said coolant and a radial pressure loss of the axially lower half portion of the coolant being 10 mm H_20 or less at a flow rate of 250 liters per minute under an atmosphere of 20 0 C.

However, since upper half portion of the coolant is substantially identical to the lower half portion of the coolant, the radial pressure loss in the two half portions will be substantial identical and the absolute value of the difference between the pressure losses will inherently be less than 6 mm H₂0 at a flow rate of 250 liters per minute under an atmosphere of 20 °C. The Examiner contends that the upper half portion is substantially identical to the lower half portion due to the process used to produce the coolant. First, one end of the wire mesh tube is axially compressed to form an intermediate annulus. Then the intermediate annulus is flip-over axially compressed from the opposite end to form the finished coolant. See col. 5, lines 39-60. Since each opposite end of the coolant is compressed, the upper portion will be substantially identical to the lower portion.

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With regard to claims 4 and 5, Zettel et al. does not disclose the pressure losses in the upper half portion or the lower half portion of the coolant being measured using the recited method.

However, since claims 4 and 5 are directed to the structure of a coolant, the method employed to measure the pressure losses of the coolant does not further limit the claims since the method of determining the pressure losses does not impart additional structural limitations on the coolants. Therefore, Zettel et al. is seen as anticipating claims 4 and 5 since Fujisawa discloses a coolant having the recited structural limitations.

With regard to claim 7, Zettel et al. discloses the coolant being an annular laminated body made of a wire mesh formed by plainly knitting stainless-steel wire rods, and said laminated body being compressed in Figs. 1-3B and col. 3, line 28 to col. 6, line 64.

8. Claims 8-10 and 12-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Fujisawa.

With regard to claim 8, Fujisawa discloses a method of producing a coolant (F) for an air bag inflator comprising the steps of compressing a cylindrical molded product at least axially, wherein, in said compressing process, said molded product is

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compressed in the axial direction on the axially opposite ends thereof in Figs. 1-7 and col. 3, line 57 to col. 4, line 64.

With regard to claim 9, Fujisawa does not explicitly disclose the compressing process being carried out such that an absolute value of a difference between a radial pressure loss of the axial upper half portion of said coolant and a radial pressure loss of the axially lower half portion of the coolant being 10 mm H₂0 or less at a flow rate of 250 liters per minute under an atmosphere of 20 °C.

However, since upper half portion of the coolant is substantially identical to the lower half portion of the coolant, the radial pressure loss in the two half portions will be substantial identical and the absolute value of the difference between the pressure losses will inherently be less than 10 mm H₂0 at a flow rate of 250 liters per minute under an atmosphere of 20 °C. The Examiner contends that the upper half portion is substantially identical to the lower half portion due to the process used to produce the coolant. First, the opposite ends of a tube formed from a metal mesh are outwardly folded to produce a multi-folded overlaid mesh. Then the multi-folded overlaid mesh is axially compressed from each of the opposite ends to form the coolant. See col. 4, lines 10-24. Since each opposite end of the coolant is folded and compressed, the upper portion will be substantially identical to the lower portion.

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With regard to claim 10, Fujisawa does not disclose the pressure losses in the upper half portion or the lower half portion of the coolant being measured using the recited method.

However, since claim 10 is directed to a method of producing a coolant, the method employed to measure the pressure losses of the coolant does not further limit the claims since the method of determining the pressure losses does not further define the process used to produce the coolant. Therefore, Fujisawa is seen as anticipating claim 10 since Fujisawa discloses a coolant produced using the recited method. Furthermore, as noted above, the Examiner contends that the pressure loss in the upper portion of the coolant produced using the production method of Fujisawa will inherently be nearly identical to the pressure loss in the lower portion of the coolant.

With regard to claim 12, Fujisawa discloses the compressing distances in the first and second steps being substantially equal in Figs. 1-7 and col. 3, line 57 to col. 4, line 64. The Examiner notes that the first compressing step is seen as being the compression step wherein the first end of the filter is compressed and the second compressing step is seen as being the compression step wherein the second end of the filter is compressed. Since the upper portion is seen as being substantially identical to the lower portion, the Examiner contends that the coolant will be compressed an equal distance on each of the upper and lower portions.

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With regard to claim 13, Fujisawa discloses the molded product being compressed also in the radial direction in the compressing process in Fig. 7 and col. 4, lines 18-24. Since the molded product is compressed inside a mold (4), the sidewalls of the mold are seen as compressing the molded product in a radial direction since the sidewalls of the mold prevent the molded product from expanding in the radial direction.

With regard to claim 14, Fujisawa discloses the coolant being an annular laminated body obtained by forming a plain-knitted wire mesh made (M) made of stainless-steel wire rods (11) into a cylindrical body and folding one end of said cylindrical body outwardly and repeatedly in Figs. 1-7 and col. 3, line 57 to col. 4, line 64.

9. Claims 8-13 are rejected under 35 U.S.C. 102(e) as being anticipated by Zettel et al.

With regard to claim 8, Zettel et al. discloses a method of producing a coolant for an air bag inflator comprising the steps of compressing a cylindrical molded product at least axially, wherein, in said compressing process, said molded product is compressed in the axial direction on the axially opposite ends thereof in Figs. 1-3B and col. 3, line 28 to col. 6, line 64.

With regard to claim 9, Zettel et al. does not explicitly disclose the compressing process being carried out such that an absolute value of a difference between a radial pressure loss of the axial upper half portion of said coolant and a radial pressure loss of the axially lower half portion of the coolant being 10 mm H_20 or less at a flow rate of 250 liters per minute under an atmosphere of 20 ^{0}C .

However, since upper half portion of the coolant is substantially identical to the lower half portion of the coolant, the radial pressure loss in the two half portions will be substantial identical and the absolute value of the difference between the pressure losses will inherently be less than 6 mm H₂0 at a flow rate of 250 liters per minute under an atmosphere of 20 °C. The Examiner contends that the upper half portion is substantially identical to the lower half portion due to the process used to produce the coolant. First, one end of the wire mesh tube is axially compressed to form an intermediate annulus. Then the intermediate annulus is flip-over axially compressed from the opposite end to form the finished coolant. See col. 5, lines 39-60. Since each opposite end of the coolant is compressed, the upper portion will be substantially identical to the lower portion.

With regard to claim 10, Zettel et al. does not disclose the pressure losses in the upper half portion or the lower half portion of the coolant being measured using the recited method.

However, since claim 10 is directed to a method of producing a coolant, the method employed to measure the pressure losses of the coolant does not further limit

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the claims since the method of determining the pressure losses does not further define the process used to produce the coolant. Therefore, Zettel et al. is seen as anticipating claim 10 since Zettel et al. discloses a coolant produced using the recited method. Furthermore, as noted above, the Examiner contends that the pressure loss in the upper portion of the coolant produced using the production method of Zettel et al. will inherently be nearly identical to the pressure loss in the lower portion of the coolant.

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With regard to claim 11, Zettel et al. discloses the compressing process including the first compression step of compressing the molded product in its axial direction, and the first process is followed by the second compression step of turning the molded product axially upside down and further compressing the molded product in the axial direction in Figs. 1-3B and col. 5, lines 23-60.

With regard to claim 12, Zettel et al. discloses the compressing distances in the first and second steps being substantially equal in Figs. 1-3B and col. 3, line 28 to col. 6, line 64. The Examiner notes that the first compressing step is seen as being the compression step wherein the first end of the filter is compressed and the second compressing step is seen as being the compression step wherein the second end of the filter is compressed. Since the upper portion is seen as being substantially identical to the lower portion, the Examiner contends that the coolant will be compressed an equal distance on each of the upper and lower portions.

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With regard to claim 13, Zettel et al. discloses the molded product being compressed also in the radial direction in the compressing process in Figs. 1-3B and col. 3, line 28 to col. 6, line 64. Since the molded product is compressed inside a mold, the sidewalls of the mold are seen as compressing the molded product in a radial direction since the sidewalls of the mold prevent the molded product from expanding in the radial direction.

10. Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by Fujisawa.

Fujisawa discloses an air bag inflator comprising, in a housing thereof with a gas discharge port, an ignition means to be activated upon an impact, gas generating means which is to be ignited and burnt due to activation of the ignition means for generating a combustion gas, and coolant means for purifying and cooling said combustion gas, wherein said coolant means is the coolant means according to claim 1 in Figs. 1-7 and col. 1, line 4 to col. 4, line 64.

11. Claim 16 is rejected under 35 U.S.C. 102(e) as being anticipated by Zettel et al.

Zettel et al. discloses an air bag inflator comprising, in a housing thereof with a gas discharge port, an ignition means to be activated upon an impact, gas generating means which is to be ignited and burnt due to activation of the ignition means for generating a combustion gas, and coolant means for purifying and cooling said combustion gas, wherein said coolant means is the coolant means according to claim 1 in Figs. 1-3B and col. 1, line 7 to col. 6, line 64.

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12. Claim 17 is rejected under 35 U.S.C. 102(b) as being anticipated by Fujisawa.

Fujisawa discloses an air bag apparatus comprising an air bag inflator, an impact sensor (inherent) for detecting an impact to activate said inflator, and a module case for accommodating said air bag, wherein said air bag inflator is the inflator according to claim 16 in Figs. 1-7 and col. 1, line 4 to col. 4, line 64.

13. Claim 17 is rejected under 35 U.S.C. 102(e) as being anticipated by Zettel et al.

Zettel et al. discloses an air bag apparatus comprising an air bag inflator, an impact sensor (inherent) for detecting an impact to activate said inflator, and a module case for accommodating said air bag, wherein said air bag inflator is the inflator according to claim 16 in Figs. 1-3B and col. 1, line 7 to col. 6, line 64.

Claim Rejections - 35 USC § 103

- 14. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:
 - (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
- 15. Claims 1 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Published Patent Application JP 10-119705 in view of Zettel et al.

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With regard to claim 1, JP 10-119705 discloses a coolant for an air bag inflator which is cylindrical in shape, disposed in a housing of said inflator in order to cool and purify a gas discharged from said inflator, wherein said coolant is obtained by compressing a molded product made of wire rods in Figs. 1-6 and page 1, line 45 to page 4, line 37 of the English language translation.

JP 10-119705 does not disclose the molded product being compressed on the axially opposite ends thereof.

Zettel et al. discloses axially compressing a molded product on the opposite ends thereof in col. 5, lines 23-60.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the opposite end compression of Zettel et al. into the coolant of JP 10-119705 to diminish the uneven compression and uneven density that occurs if the molded product is compressed on one side only, as suggested by Zettel et al. in col. 5, lines 39-49.

With regard to claim 6, JP 10-119705 discloses the bulk density of the coolant being 3.0 to 5.0 g/cm³, and said coolant having a pressure loss of 0.3 X10- 2 kg/cm² (30 mm H₂0) to 1.5 X 10-2 kg/cm² (150 mm H₂0) in page 1, line 45 to page 2, line 61 of the English language translation.

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16. Claims 8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Japanese Published Patent Application JP 10-119705 in view of Zettel et al.

With regard to claim 8, JP 10-119705 discloses a method of producing a coolant for an air bag inflator comprising the steps of compressing a cylindrical molded product at least axially, wherein, in said compressing process, said molded product is compressed in the axial direction in Figs. 1-6 and page 1, line 45 to page 4, line 37 of the English language translation.

JP 10-119705 does not disclose the molded product being compressed on the axially opposite ends thereof.

Zettel et al. discloses axially compressing a molded product on the opposite ends thereof in col. 5, lines 23-60.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate the opposite end compression of Zettel et al. into the method of JP 10-119705 to diminish the uneven compression and uneven density that occurs if the molded product is compressed on one side only, as suggested by Zettel et al. in col. 5, lines 39-49.

With regard to claim 15, JP 10-119705 discloses the molded product being an annular laminated body obtained by forming a plain-knitted wire mesh made of stainless steel wire rods into a cylindrical body, pressing the cylindrical body in the radial direction

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to form a plate body, and then rolling said plate body many times cylindrically in Figs. 4 and 5 and page 2, lines 2-6.

Conclusion

- 17. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The Guglielmi, Hartwell, Unterforsthuber et al., Fulmer et al., Adamini, JP 6-55991, JP 4-66348, and JP 1-293112 discloses similar air bag coolants.
- 18. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Greene whose telephone number is (703) 308-6240. The examiner can normally be reached on Tuesday Friday (7:00 AM to 5:30 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Blaine Copenheaver can be reached on (703) 308-1261. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Application/Control Number: 10/018,956

Art Unit: 1724

Jason M. Greene

Examiner

Art Unit 1724

jmg

June 24, 2003

DUANE SMITH
PRIMARY FXAMINER

6-27-09